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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,675	07/20/2006	Ekkehard Much	288839US0PCT	8067
22850 7590 03/14/2011 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER MILLER, JR, JOSEPH ALBERT	
			ART UNIT	PAPER NUMBER
			1715	
			NOTIFICATION DATE	DELIVERY MODE
			03/14/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/586,675

Applicant(s)

MUEH ET AL.

Examiner

JOSEPH MILLER JR

Art Unit

1715

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 4 and 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicants have amended claims to exclude the species previously selected, therefore the species selection related to the silicon compound is withdrawn as a result.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3 and 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Levert (2001/0036749).

Levert teaches the formation of silica (i.e. SiO₂) using an alkoxysilane [0082-92]. Per claims 1, 3, and 7, Smith teaches particularly that silica may be deposited from an arylalkoxysilane such as phenyltriethoxysilane.

Regarding the film content, silica formed from a precursor including carbon would be expected to include carbon. Levert's teaching that silica formed by CVD of the same reactants has carbon therein [0090- 92].

Further regarding claim 1 as well as claims 6 and 8, the layer is a dielectric layer formed on a semiconductor device / IC (i.e. chip) [0002-3].

Regarding claim 2, the process is a CVD process [0082].

Further regarding claim 8, the layer is formed on a silicon wafer [0013, 0100].

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Claims 1-3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Mitchener (4,845,054).

Mitchener teaches the use of trimethoxysilane or triethoxysilane via CVD to deposit SiO₂ based films (col 2, lines 19-60; Examples 2 and 3).

The film would be understood to contain some carbon (col 6, lines 20-24), the amount of carbon with these precursors is reduced compared to TEOS.

Further regarding claim 1 and also claims 6 and 8, the SiO₂ layer is a dielectric (i.e. insulator) on a silicon wafer (i.e. "chip") (col 3, lines 25-30).

Regarding claim 2, the method is CVD.

Regarding claim 3, trimethoxysilane or triethoxysilane is taught per above.

Further regarding claim 8, Mitchener teaches the formation of SiO₂ on a silicon wafer (i.e. "chip") (col 3, lines 25-30).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mitchener (4,845,054) in view of Smith (6,022,812).

Mitchener teaches the formation of SiO₂ films using various precursors as described above, but not specifically the use of the compounds of claim 7.

Smith teaches particularly that silica may be vapor-deposited from an arylalkoxysilane such as triethoxysilane or phenyltriethoxysilane (col 3, lines 20-38).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the use of phenyltriethoxysilane as taught by Smith instead of the triethoxysilane of Mitchener as Smith teaches that either of the precursors is viable for vapor phase deposition processes.

Response to Arguments

Applicant's arguments with respect to claims 1-3 and 6-8 have been considered but are moot in view of the new ground(s) of rejection.

Applicants have overcome the previous rejection by cancellation of the elected species, per MPEP 803.02, this action is being made final.

Applicants have overcome the 112 rejection and objection by amendment.

Andideh and/or Komada do not teach the process with the amended list of reactants, however the formation of a silica film is described as per above by Smith and/or Mitchener.

The teachings of Smith (6,022,812), forming a silica layer using an alkoxysilane are also of note but not specifically relied on (col 3, lines 20-38).

Conclusion

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Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSEPH MILLER JR whose telephone number is (571)270-5825. The examiner can normally be reached on Mon-Thurs, 7am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JOSEPH MILLER JR/
Examiner, Art Unit 1715

/Timothy H Meeks/
Supervisory Patent Examiner, Art Unit 1715